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Control System Designs for Ice Coring Drills

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The control system for ice coring drills present many design challenges due to the harsh environments in which the components must operate. This is further complicated by the need to send power and communicate over long winch cables with small conductors. An increasing amount of components can be purchased off-the-shelf, however custom electronics are still often required to provide communications and motor control over long winch cables. Modern motor controllers provide precise motor control in a compact and lightweight package, but often introduce electrical noise into the system that must be addressed with proper filtering and cable shielding. This presentation provides an overview of the control systems to be used with the U.S. Ice Drilling Program's (IDP) new shallow Foro 400 Drill and the in-development deep Foro 3000 Drill.

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